

Title (en)
EXHAUST CIRCULATION DEVICE FOR INTERNAL COMBUSTION ENGINE

Title (de)
ABGASZIRKULATIONSVORRICHTUNG FÜR EINEN VERBRENNUNGSMOTOR

Title (fr)
DISPOSITIF DE CIRCULATION D'ÉCHAPPEMENT POUR MOTEUR À COMBUSTION INTERNE

Publication
EP 2674604 A4 20140129 (EN)

Application
EP 11858387 A 20110208

Priority
JP 2011000687 W 20110208

Abstract (en)
[origin: EP2674604A1] Provided is an exhaust gas recirculation apparatus of an internal combustion engine which can effectively suppress condensed water from being generated in an EGR passage, compared with the conventional apparatus. The exhaust gas recirculation apparatus includes an EGR pipe formed therein with an EGR passage held in communication with the exhaust passage and the intake passage, an EGR cooler in the EGR passage to cool the EGR gas, a first valve provided in the EGR passage between the EGR cooler and the exhaust passage to selectively take an opened state or a closed state, the first valve being operative to shut off the EGR gas from flowing into the EGR passage when the first valve takes the closed state, a second valve provided in the EGR passage between the EGR cooler and the intake passage to adjust an amount of the EGR gas flowing into the intake passage.

IPC 8 full level
F02M 25/07 (2006.01)

CPC (source: EP US)
F02D 41/0065 (2013.01 - EP US); **F02M 26/28** (2016.02 - EP US); **F02M 26/30** (2016.02 - EP US); **F02M 26/33** (2016.02 - EP US); **F02M 26/39** (2016.02 - EP US); **F02M 26/50** (2016.02 - EP US); **F02M 26/73** (2016.02 - EP US); **Y02T 10/40** (2013.01 - EP US)

Citation (search report)

- [YD] JP 2007303381 A 20071122 - TOYOTA MOTOR CORP
- [Y] DE 10344218 A1 20050414 - MAHLE FILTERSYSTEME GMBH [DE]
- [A] WO 2010067427 A1 20100617 - TOYOTA MOTOR CO LTD [JP], et al & EP 2369164 A1 20110928 - TOYOTA MOTOR CO LTD [JP]
- [A] FR 2943383 A1 20100924 - RENAULT SAS [FR]
- [A] DE 19854461 C1 20000309 - DAIMLER CHRYSLER AG [DE]
- See references of WO 2012107951A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
EP 2674604 A1 20131218; EP 2674604 A4 20140129; CN 103348120 A 20131009; JP 5799963 B2 20151028; JP WO2012107951 A1 20140703; US 2013319382 A1 20131205; WO 2012107951 A1 20120816

DOCDB simple family (application)
EP 11858387 A 20110208; CN 201180066861 A 20110208; JP 2011000687 W 20110208; JP 2012556650 A 20110208; US 201113983865 A 20110208